

REMARKS

Acknowledgement of applicants' claim to priority and receipt of the priority document (in the parent application) is once again respectfully requested.

While applicants disagree with the double patenting rejection, it has been rendered moot by the filing of a terminal disclaimer concurrently herewith.

The claims in the application were rejected under 35 U.S.C. 103 over JP '090 or Carey, each references considered individually. These rejections are respectfully traversed.

The claims in this application relate to a lead free solder containing at least one member of the group of 0.1-1% (preferably 0.4-0.5%) cobalt, 0.01-0.2% (preferably 0.05-0.1%) of iron, 0.01 to 0.2% (preferably 0.05-0.1%) of manganese and 0.01-0.2% (preferably 0.4-0.6%) of palladium; 0.5 to 1% of copper and at least 90.5% of tin. The claims also relate to a soldered article containing a transition metal conductor and being joined through the solder. The claimed invention is not taught or rendered obvious by the prior art.

As recognized by the lack of a rejection under § 102, JP '090 does not teach the claimed invention. It is respectfully submitted that the reference also does not render the claimed invention obvious.

JP '090 teaches a solder alloy which must include bismuth and indium as essential components, neither of which are employed in the present invention. These elements form a low melting eutectic with tin and as a result, the heat resistance of the solder will be decreased. Further, bismuth easily dissolves and merges into the tin and as a consequence, the fatigue strength of the solder will be decreased. There is no teaching or suggestion that either the bismuth or the indium can be eliminated nor is there a

motivation to do so. Accordingly, the Japanese reference cannot render the claimed invention obvious.

The Office Action seeks to avoid the foregoing by noting that JP '090 teaches that (a) Bi could be added independently of In and (b) "the instant specification does not exclude Bi (see pages 8-9 of the instant specification)." As to (a), paragraph 0013 does indicate independent addition (meaning that it is possible for the solder to be free of In for some period of time) but this rejection is based on the possible presence of Pd or Fe in the JP '090 solder. Paragraph 0014 indicates these are possibly added to a Bi and In containing solder, and hence both Bi and In will be present. With respect to (b), and perhaps more importantly, the issue is what the claims cover, and not what the specification discloses. As the Examiner is aware, the specification discloses a number of different solders but not all are being claimed in this application. The claims under consideration exclude Bi. While either of these considerations is sufficient standing alone, the combination demonstrates that the justification advanced in the Office Action is not tenable.

The Carey patent teaches a corrosion resistant copper metal coated with an alloy of tin which can contain as little as 75% tin (col. 23, line 25) although the preferably amount is apparently at least 90%. A reference to a lead-free solder has not been noted in this reference. The composition of such tin alloys are set forth in cols. 29 and 30. Those tin alloys contain tin and one or more of at least 13 or more elements, one of which is even lead. None of the specific tin alloys described in the patent fall within the scope of the instant claims. There are many millions of combinations that fall within the scope of the Carey disclosure, even before considering amount of each element. Thus, even if one were to choose to have, for instance, iron present, it could be in excess of the 0.2% by weight maximum of the instant claims. The Carey disclosure includes tens of millions, if not hundreds of millions, of compositions outside the scope of the claims under consideration here. To realize a composition having the same elements and amounts as the instant claims, even by accident, would be serendipity.

It is well established that a shotgun disclosure (as in *Carey*) is insufficient to render an invention such as claimed here obvious. As stated by the CCPA in *In re Luvisi*, 144 USPQ 646 (1965), quoting an earlier Board of Appeals decision,

The likelihood of producing a composition such as here claimed from a disclosure such as shown by the ...patent would be about the same as the likelihood of discovering the combination of a safe from a mere inspection of the dials thereof.
(emphasis by the Board)


More recently, the Federal Circuit pointed out that a disclosure of millions of compounds does not render a claim to a small number of compounds obvious. *In re Baird*, 29 USPQ2d 1550 (Fed. Cir. 1994). “The fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious.” *Id.* at 1552. The cases cited in the Office Action, to the extent relevant, are not to the contrary as they involve references whose breath was much more limited, such as, for example, up to 1200 possibilities.

The *Carey* disclosure of many millions of possibilities is, at the very best, an invitation to experiment, without any disclosure which suggests the lead free tin solder claimed in this application.

There is clearly no motivation to realize the claimed solder in the references advanced in the Office Action. It is therefore respectfully submitted that the rejection of this case should be withdrawn and the application allowed.

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Respectfully submitted,

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